

P. B. LAWSON.
Centrifugal-Machine.

No. 204,834.

Patented June 11, 1878.

Fig. 1.

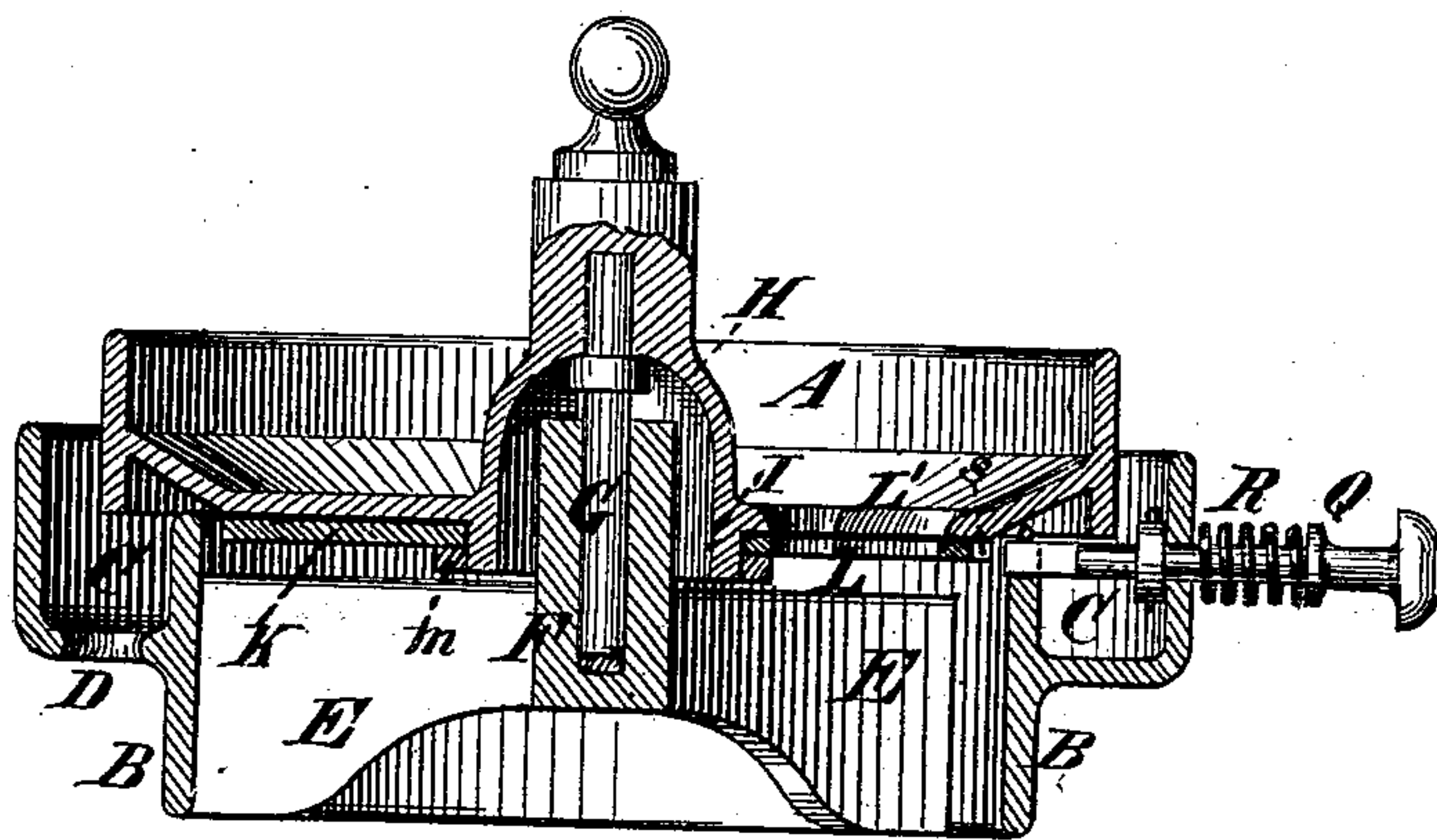
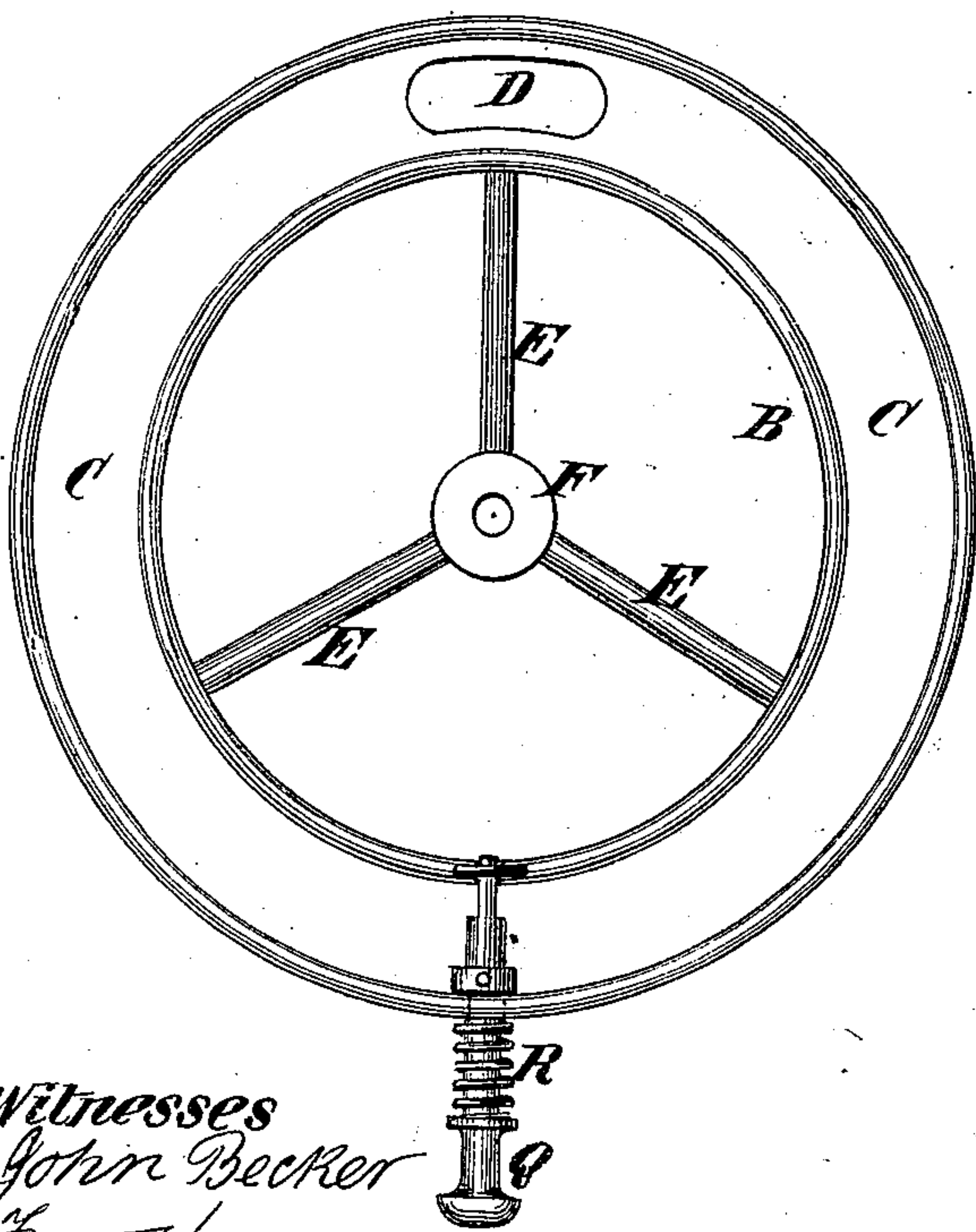
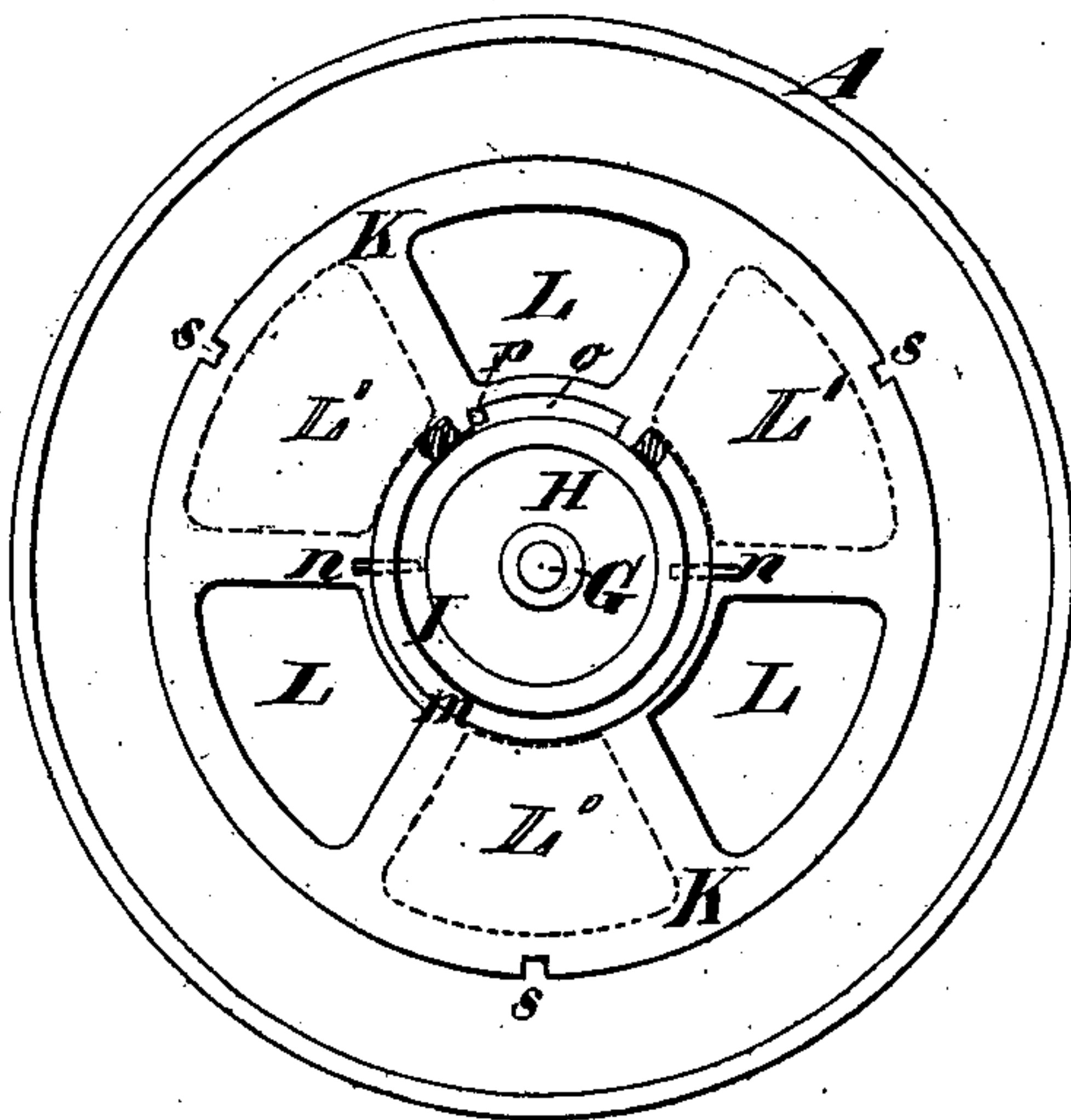


Fig. 2.



Witnesses
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Fig. 3.



Inventor
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UNITED STATES PATENT OFFICE.

PETER B. LAWSON, OF COLD SPRING, NEW YORK.

IMPROVEMENT IN CENTRIFUGAL MACHINES.

Specification forming part of Letters Patent No. 204,834, dated June 11, 1878; application filed February 20, 1878.

To all whom it may concern:

Be it known that I, PETER B. LAWSON, of Cold Spring, in the county of Putnam and State of New York, have invented an Improvement in Centrifugal Machines for Purging and Drying Sugar and other Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification.

My invention is an improvement upon the invention of Lawrence Hardman for which English Letters Patent No. 9,898 were granted to him A. D. 1843; and my said invention relates to the bottom valves of machines of the class described by said Hardman in said Letters Patent, and commonly known as "centrifugal machines."

The bottom or outlet valve in the said Hardman's invention was placed on the outside of the basket of the machine, and provided with a central sleeve which moved up and down on the lower part of the vertical shaft of said basket. When pressed up against the bottom of the basket said valve closes openings in said bottom, and vice versa. Said valve was pressed against the bottom of said basket to close said openings by means of a male screw formed on the lower part of the said shaft, a nut fitted to said male screw, and a spring interposed between said nut and the lower end of the said central sleeve of said valve. By running the said nut down on said male screw the said valve was moved away from the bottom of said basket to uncover the openings in said basket for discharging the sugar therefrom.

The defects in this valve led, for a time, to the abandonment of the use of outside bottom valves for such machines, and the substitution therefor of inside bottom valves; but inside valves have also important defects, inherent in the system and unavoidable.

In the first place, inside valves are necessarily too small to allow the desired rapidity of discharge, as they cannot be made of larger size than it is possible to introduce through the upper central opening in the basket.

In the second place, inside valves of any kind have to be operated to open the same on the inside of the basket, necessitating the in-

troduction of a wrench or other analogous instrument in among the sugar in said basket; and as such valves are very liable to be gummed to their seats by dried or partially-dried sugar, it is very often a work of severe labor to open them.

In my invention I return to the system of outside valves, so constructing and operating them as to wholly avoid the defects of either of the aforesaid systems as heretofore practiced and applied.

Figure 1 in the accompanying drawing is a central vertical section of a portion of a centrifugal machine having its bottom valve constructed in accordance with my invention. Fig. 2 is a top view of the tub and parts thereunto attached. Fig. 3 is a bottom view of the lower part of the basket, with my improved valve thereunto attached, a part of the attachment which confines the valve being broken away to show certain features of the construction.

A represents the lower part of the basket of a centrifugal machine, which, except in respect of its bottom valve and the attachment of the same, may be of any approved construction, and will not need further description.

B is the tub or stationary part of the machine, in which is the sirup-gutter C, having the outlet D.

From a boss or hub, F, which contains a bearing for the shaft G of the basket, extend radially outward arms or supports E to the tub B, to which the said arms are attached for the support of said boss.

The bottom of the basket has a central dome-shaped recess, H, into which the boss or hub F projects upwardly. Immediately around the lower part of the recess H is a downwardly-projecting annular flange, I, which forms a central bearing for the bottom valve, hereinafter described.

K represents the valve, fitted to turn on the aforesaid annular flange I, which, as aforesaid, forms a bearing for said valve. Said valve is of the form which, when used for heating apparatus, is known as a "register-valve"—that is to say, it is a flat disk, having formed therein segmental openings L, corresponding to segmental openings L', formed in

the bottom of the basket, which last-named openings are shown in dotted outline in Fig. 3, which shows the valve turned into the position wherein the said openings in the said bottom of the basket are closed. The said valve is accurately fitted to the bottom of said basket, and is held to its place by a ring, *m*, fitted to the flange *I* below said valve, and fastened to said flange by pins *n* or any other suitable means. Said valve is constructed to turn on its bearing *I* in such manner that the normal revolution of the basket tends to hold it in position to close the openings in the bottom of said basket.

To limit the motion of said valve on its bearings *I*, there is formed in said valve, near the said bearing, a segmental slot, *o*, Fig. 3, into which enters a stop or projection, *p*, attached to the bottom of the basket *A*. The said slot and projection are so arranged that when one end of the slot abuts against the said projection, as shown in Fig. 3, the openings in the bottom of the basket will be fully closed, and when the other end of said slot abuts against said projection the said openings will be fully uncovered, as shown in Fig. 1.

In bearings fitted in or upon the tub *B*, preferably in the outer and inner curbs thereof, is fitted a spring-stop, *Q*, which, when pressed inward, engages one or more notches, *s*, formed in the perimeter of the valve *K*, the spring *R* freeing said valve from engagement with the said stop when the latter is not pressed inward. The said stop *Q* forms a means of attachment by which the said valve may be rigidly fastened to the stationary part of the machine when it is desired to open the valve. I do not intend, however, to limit myself to this precise means of fastening the said valve to the stationary part of the machine, as other means may be employed.

When it is desired to open the valve, the rotation of the basket is stopped, and the said stop *Q* is pushed inward till it engages a notch, *s*, in the perimeter of said valve. The basket is then turned in the opposite direction to that

of its normal rotation, and the valve, being held fast, is forced open as far as the projection *p* in the slot *o* will permit.

This construction permits the opening of the valve without the use of any wrench, lever, or other analogous instrument. It enables the operator to employ, in turning the valve, the leverage due to the radius of the basket as he grasps the exterior of said basket in turning it backward to open the valve, and the operation is performed by a single movement, thus saving much time hitherto lost in discharging the baskets of such machines. The openings in the bottom of the basket can be made so large that a much more rapid discharge may be effected than has hitherto been possible.

The purchase upon the valve is so great that it cannot be held fast by gumming to its seat. The valve is self-cleaning, and needs no scraping or other manipulation after opening it to secure a sirup-tight joint when it is again closed.

I claim—

1. In a centrifugal machine for purging and drying sugar, and for analogous uses, the combination, with the basket and the stationary part of the machine, of a valve placed on the outside of the bottom of the basket, fitted to and turning about a bearing on the outside of the said bottom, and a fastening device, substantially as described, for securing the said valve to the stationary part of the machine, substantially as and for the purpose specified.
2. The combination of the basket *A*, outside bottom valve *K*, fitted to and turning on the bottom of said basket, and provided with one or more notches, *s*, in its perimeter, and a spring-stop, *Q*, working in bearings in or on the tub *B*, and adapted to engage the said notches when the said stop is pressed inward, substantially as and for the purpose described.

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Witnesses:

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